Department of Electronics & Communication Engineering

Faculty of Engineering, Integral University, Lucknow

Home Assignment-3

Basic Electrical Engineering (IEN-101)

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Section : EC-1

Problems : 05

1. State various parts of a transformer and their functions.
2. Explain the working principle of a transformer.
3. The primary winding of a transformer has 300 turns. When connected across a 220V, 50Hz supply, it draws a current of 5 A at a power factor of 0.25 on no-load. Determine (a) the maximum value of core flux (b) magnetizing current and (c) the loss in the core. How many turns are required in the secondary to step-up the voltage to 415V?

   [3.03mW, 4.84A, 275W, 566]

4. Write short notes on core losses.
5. The open circuit and short circuit test on a 4-kVA, 200/400V, 50Hz, single phase transformer gave the following result
   OC test on LV side: 200V, 1 A, 100 W
   SC test with LV side shorted: 15 V, 10 A, 85 W
   Determine the parameters of the equivalent circuit and draw the equivalent circuit referred to the LV side.

   [0.2125 Ω, j0.309 Ω, 0.0025S, 0.0433S]